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THE INSTITUTE OF PHYSICS

47, BELGRAVE SQUARE, LONDON, S.W.1

BULLETIN

No. 5 MAY 1950

PROFESSOR J. A. CROWTHER, M.A., Sc.D., F.Inst.P.

Professor Crowther delivering the Fleming Memorial Lecture of the Television Society at the Royal Institution on September 25th, 1947.

We deeply regret to record the sudden death on March 25th, 1950, of Professor James Arnold Crowther at the age of 66.

Professor Crowther, a Founder Fellow of the Institute, had served on the Board continuously from 1930 until his death, having been Honorary Secretary from 1932–46 and a Vice-President since that time. He was Chairman of the Industrial Radiology Group from its formation in 1941 until 1945.

It is difficult to express adequately the debt which the Institute owes to Professor Crowther, particularly for his work as Honorary Secretary over a period which included the years of the war. It is, however, an indication of the success of this work that the membership of the Institute rose during his period of office from less than 700 to almost 3 000. It was during this period also that among many new activities, Branches and specialist Groups of the Institute were formed, certificates in Laboratory Arts were established and National Certificates in Applied Physics were launched jointly with the Ministry of Education. These were among the activities which enabled the Institute's status and reputation to become widely recognized—a result to which Prof. Crowther's enthusiasm and willing sacrifice of leisure made an outstanding contribution.

During the war he was able to give close attention to the problems upon which Members and Government Departments sought the Institute's help or opinion, for through his good offices the Institute was offered emergency accommodation for its Headquarters in the

University of Reading. This close interest was not only of importance to individual Members with personal difficulties occasioned by the war, but was of even more importance to the Institute as a whole by virtue of the guidance which he gave upon matters involving problems of resettlement as the war approached its end. Because of these war-time conditions, Prof. Crowther had not only a longer but a greater influence upon the Institute than has any of the other Honorary Officers by whom it has been served. It is already clear that Members now and in the future will owe much to his foresight and his enthusiasm for the Institute's work.

On his retirement from the Honorary Secretaryship in 1946, past and present members of the Board gave a luncheon to Professor and Mrs. Crowther and presented a testimonial to him. This, signed by three Past Presidents, paid tribute to his unstinting service and to his actions and services which illuminate the pages of the Institute's records.

James Arnold Crowther was born in Sheffield. He was educated at the Royal Grammar School, Sheffield, and at St. John's College, Cambridge, of which he became a Fellow. In 1908 he became demonstrator in the Cavendish Laboratory and remained on the staff of the Laboratory as a Lecturer until 1924. In that year he became Professor of Physics in the then University College of Reading, later the University of Reading; he retired in 1946 and was made an Emeritus Professor. His scientific work was mainly concerned with the action of X-rays on living matter to which he made some notable contributions; he was the author of numerous scientific papers. He had many honours and filled many offices. He was President of the British Institute of Radiology in 1936 and was an Honorary Member of the Faculty of Radiologists, and he was for some time Vice-Chairman of the Parliamentary and Scientific Committee.

To many generations of students, Prof. Crowther was known through his text books on physics, particularly perhaps his *Ions, Electrons and Ionizing Radiations*, the eighth edition of which appeared shortly before his death. He possessed the rare quality of writing lucidly and concisely on difficult technical subjects; he was a delightful lecturer. Like most Yorkshiremen, he was outspoken but always generous in his criticisms; his lively wit could be biting, but was never malicious. He was a man of strong religious convictions and of high moral courage, which caused him to object to warfare in all its forms. All too few members of the Institute had the opportunity of coming to know him as an individual—a typical North-country gentleman. He sometimes expressed his regrets that in speaking at committee and other meetings, he may have given an impression of unhelpfulness which was the last thing his gentle nature could ever have desired. Those who did have the privilege of knowing him as a man really well, have lost a friend and guide it will be hard to replace.

He leaves a widow and two sons, to whom all Members of the Institute will wish to extend their sincere sympathy.

H. R. LANG.

RTHCOMING CONFERENCES

Institute of Physics Conference on Some Aspects of Fluid Flow

It is now possible to give some further details of the Institute's Conference on "Some Aspects of Fluid Flow," which is to be held on October 25th–28th at Ashorne Hill, Leamington Spa. It will be necessary to limit numbers attending to about 200 and as far as possible preference will be given to Members of the Institute.

The Conference will be residential; details of costs and of method of application to attend will be announced shortly.

The programme will include four main sessions with papers as follows:

1. *Industrial Problems*
   Surveys of Industrial Problems
   (*a*) involving turbulent mixing of fluids.
   (*b*) involving the combined flow of fluids and solids.
   (*c*) involving flow patterns and measurement.
   (*d*) in hydromechanics.

2. *Fundamental Problems*
   (*a*) Problems in the Atomization of Liquids.
   (*b*) Boundary Layer and Skin Friction in a Compressible Fluid Flowing at High Speeds.
   (*c*) Fluid Flow in Granular Systems.
   (*d*) Fluid Flow through Beds of Granular Material.

3. *Techniques*
   (*a*) Fluid Flow in Orifices and Venturies
   (*b*) Techniques for the Study of Flow in Furnaces
   (*c*) Fluid Flow in Relation to the Manufacture of Steel.
   (*d*) The Use of Radon for Tracing Flow in Gas Systems.

4. *Applications of Present Knowledge and Techniques*
   (*a*) Theory and Design of Simple Ejectors.
   (*b*) The Laws of Motion of Particles in Fluids and their Application to the Resistance of Beds of Solids to the Passage of Fluids.
   (*c*) Turbulence Excitation of Ship Models.

NOTICES TO MEMBERS

Expulsion of a Fellow

In accordance with the provisions of Article 12 of the Articles of Association of the Institute, the Board has terminated the membership of Dr. Klaus Fuchs, who has been declared to be no longer a Member of the Institute.

Back Numbers of the "Journal of Scientific Instruments"

The Institute holds a number of orders for complete "runs" of the *Journal of Scientific Instruments* which it cannot at present supply because a few parts are completely out of stock. Members who are willing to dispose of a few back numbers of this Journal could therefore materially assist the Institute by selling such copies back and allowing complete sets to be made up and sold. This would enable the Institute to capitalize the substantial (though unevenly distributed) stock of the Journal; complete sets now sell at approximately £100.

For a limited time the Institute would be prepared to buy back copies of the under-mentioned parts which are in good condition; 7s. 6d. per part will be paid; journals should be securely packed and addressed to the Publications Department, The Institute of Physics, 47 Belgrave Square, London, S.W.1. The name and address of the sender should be included.

The Institute is *not* prepared to buy any other parts at present.

Year	*Parts*	*Volume*
1923–24	3, 5, 6, 10	1
1924–25	6, 8, 9, 11, 12	2
1925–26	4, 7, 10, 12	3
1926–27	3, 4	4
1935	3, 5	12
1936	11	13
1939	1, 3, 4	16
1941	5, 6, 7	18
1942	5, 7	19
1943	1, 2, 3, 4, 5, 7, 8, 10	20
1947	4, 5, 8, 9, 10, 11, 12	24
1949	4	26

PROCEEDINGS OF THE BOARD

The Board met on March 16th; Professor J. A. Crowther, Vice-President, in the Chair in the absence of the President in America. In addition to formal business the following items were dealt with.

Education of Technologists.—A draft reply to an invitation from the National Advisory Council on Education for Industry and Commerce, to comment upon proposals for developments in Higher Technological Education was considered. After amendment it was approved and ordered to be printed.

Finance.—The Honorary Treasurer presented the report of the Finance Committee which included the accounts for 1949. These were approved for submission to the Annual General Meeting. A recommendation of the Committee that the annual meeting be asked to amend the By-laws by the deletion of By-law 17 was agreed. This By-law relates to life composition fees; in the present financial position of the Institute the Board feels that the compounding for annual subscriptions should not be permitted.

The Treasurer reported that the Secretary had been instructed to watch the Institute's financial position closely during the year and to take steps to ensure that all items of expenditure are kept within the approved budget figures. It had been decided to call an extra meeting of the Finance Committee at mid-summer to examine the position and, if necessary, make recommendations for economies.

Annual Report for 1949.—The draft of the Board's report was approved for circulation to Members and submission to Annual General Meeting. This Report was included in the April issue of the Bulletin.

Education.—Professor Llewellyn Jones, Chairman, presented the report of the Education Committee which dealt mainly with the publication of volumes in an Institute series of educational pamphlets. The Committee recommended the early publication of six volumes and submitted proposals for titles and authors. The Board granted authority for the issue of invitations to the authors concerned.

Books for Members' Room.—The Officers reported an arrangement, which was welcomed by the Board, whereby a firm of booksellers would maintain a selection of new scientific and technical books for inspection in the Members' Room.

Representative.—In response to a request from the Welsh Academic Board of Technology, Mr. W. Somerville Vernon was appointed the Institute's representative on a Sub-Committee on Specialist Courses in Electrical Engineering.

Nominations.—The Board considered the recommendations of the President's Committee to fill the vacancies which will occur in the official section of the Board on 30th September next and also considered nominations for Ordinary Membership of the Board. The names of the Board's nominees will be circulated to Members before the end of May.

"*Without living experiences no person is educated. With nothing but academic degrees, even when overloaded by a smattering of dead languages and twopennorth of algebra, the most erudite graduates may be noodles and ignoramuses.*"

G. BERNARD SHAW.

DIARY OF INSTITUTE MEETINGS

Members may bring guests to any of the meetings listed below unless otherwise indicated.

May 11th (Midland Branch). 5.0 p.m. at the University, Edgbaston, Birmingham.
Prof. M. L. Oliphant, "Science and the British Commonwealth with special reference to Australia."

June 10th (Electronics Group). 2.30 p.m. at the Royal Society of Tropical Medicine and Hygiene, Portland Place, London, W.1.
"Gas Discharges."

June 17th (London and Home Counties Branch). Visit to the National Institute for Research in Dairying, Reading.

June 27th and 28th (Midland Branch). At the University of Birmingham, Edgbaston.
Conference and Exhibition on **"Vacuum Equipment."**

June 29th, 30th and July 1st (Manchester and District Branch) at the University of Manchester.
Conference on **"The Physics of Lubrication."**
(Joint meeting with the British Rheologists Club.)

July 1st (Education Group). Visit to the Science Schools of Harrow School.

July 25th–28th (Industrial Radiology Group). At the New Horticultural Hall, Westminster, London.
Exhibition and Meetings in connection with the International Congress of Radiology.

APPOINTMENTS VACANT

The inclusion of particulars of a vacancy must not be taken to imply that the Institute necessarily approves of the terms offered or that might be offered. Candidates should satisfy themselves that these are satisfactory, and they may always refer to the Institute for advice. A suggested form of contract under which a qualified physicist might reasonably be expected to serve is available on request.

The British Iron and Steel Research Association. The above Association is offering a bursary, will be tenable at the Inorganic Chemistry Laboratory of Oxford University, and will be under the supervision of Dr. W. Hume Rothery, F.R.S. Applicants should have, or expect to obtain, a good honours degree in Metallurgy, Physics, or Physical Chemistry. The value of the bursary is £250–£300 p.a., according to age, qualifications and residence. Period of tenure will be normally for two years commencing October, 1949, but may be extended as necessary to complete the research, which is intended to lead to a higher degree. Written applications only to the Personnel Officer, British Iron and Steel Research Association, 11 Park Lane, W.1.

Technical Assistant required for pilot production unit making special types of thermionic valves, gas-filled tubes and vacuum capacitors. Practical experience in vacuum work of this nature essential. Staff appointments, salary according to age, qualifications and experience. Apply to Personnel Manager, Ferranti Ltd., Ferry Road, Edinburgh.

Engineer–Physicist (Senior) for development of centimetre-wave electron tubes. Good prospects and conditions. Salary up to £800 per annum according to qualifications and experience. Edinburgh Area. Box No. 707 J. G. McCallum & Co., 21 Castle Street, Edinburgh.

Ministry of Supply invites applications for post in grade Principal Scientific Officer at outstation of Royal Aircraft Establishment in Southern England. Duties involve administration of and technical responsibility for a range dealing with measurement of parameters occurring in flight of guided and unguided rockets. Candidates must have good honours degree or equivalent qualification in Physics, Mathematics or Electrical Engineering. Experience of optical and electronic instrumentation required with good Mathematical standard. Salary according to age (minimum age 31), qualifications and experience within P.S.O. range £910–£1,177 men, £790–£1,016 women. Post is unestablished but carries F.S.S.U. benefits. Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), York House, Kingsway, London, W.C.2. Quoting A 86/50. Closing date, May 24th, 1950.

Ministry of Supply invites applications for following posts in Scientific Officer Class at a Research Establishment in the home counties.

Post 1. Mathematician (P.S.O. or S.S.O.) with experience of gas dynamics for work on heat transfer problems and study of internal ballistics of solid propellent rocket motors.

Post 2. Physicist (P.S.O. or S.S.O.) with experience in gas dynamics to study problems in this field relating to rocket motors.

Post 3. Chemist (S.S.O. or S.O.) for research and development work on solid propellent rocket motors. Experience in explosives or in study of combustion colloid chemistry or chemical kinetics an advantage.

Honours degree in subject specified required for all posts and appropriate experimental research experience required for senior posts. Salary according to age, qualifications and experience within ranges:

Principal Scientific Officer (min. age 31), £910–£1,177.
Senior Scientific Officer (min. age 26), £670–860.
Scientific Officer, £380–£620.

Rates for women somewhat lower. Posts are unestablished but carry F.S.S.U. benefits. Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), York House, Kingsway, London, W.C.2. Quoting A92/50 for Post 1, A93/50 for Post 2, F216/50 for post 3. Closing date May 28th, 1950.

Physicist. Candidates should possess as a minimum qualification a good second-class honours degree: should have an aptitude for experimental "properties of matter" physics, and a high degree of manipulative skill. The successful candidate will be required to work on a variety of physical problems arising in connexion with the manufacture, and subsequent processing of rayon yarns. Candidates should write for a detailed form of application to the Director of Personnel, Courtaulds Limited, 16, St. Martins-le-Grand, E.C.1, quoting reference No. D.50.

Honours Graduate with a good honours degree in mathematics, statistics or physics. Candidates should have some experience of the textile industry. The selected candidate will be required to formulate and carry out a programme of "operational research" on problems relating to yarn processing. He will be expected to organize the collection of data from factories, and to examine the data critically with a view to making recommendations for the improvement of processes and equipment. Candidates should write for a detailed form of application to the Director of Personnel, Courtaulds Limited, 16 St. Martins-le-Grand, E.C.1, quoting reference No. D.51.

The British Boot, Shoe and Allied Trades Research Association require an understudy to the physicist-in-charge of a laboratory dealing with consulting work on the physical properties of shoes and shoe materials. A good degree, practical ability and a gift for organizing are required. Training will be given in the technology of the industry. This is a good opening, with prospects of advancement, for a young man of about 25 years. Superannuation under F.S.S.U. Full particulars on application to the Director, Satra House, Rockingham Road, Kettering.

University College, Southampton. Applications are invited from Physics Graduates with research experience (preferably with a knowledge of Electronics) for appointment for research in Microwave Spectroscopy. Salary according to qualification and experience. Applications should be sent to the Registrar not later than May 31st, 1950.

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